

97 E Box. 0076
No. 3.



Box I, 97 E.
Science and Art Department.

OF THE
COMMITTEE OF COUNCIL ON EDUCATION,
MUSEUM OF IRISH INDUSTRY.

INVENTORY CATALOGUE

OF THE
SPECIMENS ILLUSTRATING THE NATURE, EXTENT, AND USES

OF THE
IRISH, BRITISH, AND FOREIGN COAL AND
PEAT FUEL DEPOSITS,

AND THE
MATERIALS, PROCESSES, AND PRODUCTS

OF THE
IRON AND STEEL MANUFACTURES,

IN THE
COLLECTION

OF THE
MUSEUM OF IRISH INDUSTRY, DUBLIN,



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1862.

NOTICE.

EXPLANATION OF THE NUMBERS UPON THE SPECIMENS.

Each Specimen is marked with a red and a black number.

The red numbers run in consecutive order, and serve to indicate the Specimens contained in each case.

The black numbers are consecutive for each series of Specimens, whether in the same case or not.

CONTENTS.

	Page
Coals, ironstones, fire-clays, pig-iron, &c., of England and Wales,	3-11
Coals, iron ores, fire-clays, &c., of Scotland,	11, 12
Iron ores, coals, coke, pig, and bar iron, and steel, of Belgium, .	12, 13
Iron ores of Sweden,	13
New Zealand coal,	13
Irish silicified wood, lignite, and amber,	14
Irish peat, peat charcoal, &c.,	14-17
Compressed peat,	17
Products of the distillation of peat,	18
Irish coals,	18
Products of the distillation of coal,	23
Gas coals,	23
Products of the distillation of wood,	23
Irish ironstones, fire-clays, pig-iron, pyrites, &c.,	24-28
Models and specimens illustrative of the process of iron and steel making,	29, 32, 33
Ornamental castings in iron,	30, 33
Railway bolts, springs, &c.,	31
Submarine telegraphic cables,	31
"Natural" and "blister" steel, cutlery, edge tools, files, &c., .	34, 35
Steel springs and steel wires, combs, hackles, &c.,	36, 37
Illustrations of the manufacture of needles,	37, 38
Manufacture of steel pens,	38-40
Enamelling of metal,	40
Galvanized iron cordage,	41
Ores of iron,	41, 42

LOWER NORTH GALLERY.

WALL-CASE A.

Containing: specimens of English and Scotch coals; series of rocks, specimens illustrative of the Geological structure of the Coal Measures; iron ores, raw and calcined; pig-iron, high furnace and refining furnace cinder; specimens illustrative of the manufacture of British Bar Iron; series of Belgian iron ores, coals, &c., used at Seraing in Belgium, and of the pig, wrought iron, and steel made therefrom; series of the more important iron ores of Sweden; and specimens of New Zealand coal.

Red Numbers on Specimen.*	Black Numbers on Specimen.	
		COALS, IRONSTONES, FIRE-CLAYS, PIG-IRON, OF ENGLAND AND WALES.
		HÆMATITES, &C., NOT BELONGING TO SPECIFIC SERIES.
1-4	1	Brown Hæmatite, Cornwall.
5, 6	2	Brown iron ore, <i>Limonite</i> , from Hengistbury Head, Hampshire Coast. (Middle Eocene).
		IRON ORES FROM OOLITIC LOCALITIES.
7, 8	1	Iron ore, Blisworth.
9, 10	2	ditto calcined.
11, 12	3	Clay iron stone, Grosmont Whitby.
13	4	ditto calcined.
14, 15	5	Clay ironstone, Normanby Mines. Cleveland, Yorkshire.
16, 17	6	ditto calcined.
		COALS AND IRON ORES FROM THE FOLLOWING ENGLISH LOCALITIES:
		1. BRISTOL COAL FIELD; 2. SOUTH WALES; 3. STAFFORDSHIRE; 4. SHROPSHIRE; 5. NORTH STAF- FORDSHIRE; 6. NORTH WALES; 7. LANCASHIRE; 8. CUMBERLAND; 9. DERBYSHIRE, NOTTINGHAM, AND YORKSHIRE; 10. NORTHUMBERLAND; 11. DURHAM.

* See Explanation, p. 2.

Red Numbers on Specimen.	Black Numbers on Specimen.	
SPECIMENS OF THE COALS FROM GLOUCESTERSHIRE. (Bristol Coal Field.)		
18	1	Large vein coal, Stapleton.
19, 20	2	Small vein coal, ditto.
		Presented by J. C. Hawley, Esq.
SPECIMENS OF THE COALS AND IRON ORES OF SOUTH WALES.		
21	1	Coal from Moreton, Pembrokehire.
22, 23	2	Coke from ditto.
24-26	3	Coal from Swansea.
27	4	Coke from ditto.
28, 29	5	"Jussols" coal, Cardiff.
30	6	Coke from ditto.
31-33	7	Iron stone from Flampora.
34	8	Iron stone from Trinsarren, Pembre, Carmarthen.
	9	N.B.—At the end of the Lower South Gallery will be found two large specimens of Anthracite, from Llanelly, Carmarthenshire. <i>Presented by Messrs. Morgan and Sons, Llanelly.</i>
SPECIMENS ILLUSTRATIVE OF THE COALS, IRON ORES, FIRE-CLAYS, AND OF THE MANUFACTURE OF IRON IN SOUTH STAFFORDSHIRE.		
<i>Presented by Mr. Thomas Barker, Chillington Iron Works, Wolverhampton.</i>		
Coals.		
35	1	Brooch coal, Dudley.
36	2	Sulphur coal, ditto.
37	3	Flying red coal, ditto.
38	„	Fire-clay associated with "flying red" coal.
39	4	New mine coal, Dudley.
40	„	Fire-clay associated with New mine coal.
41	5	Fire-clay coal.
42	„	ditto coke.
43	6	Thick coal measure between 30 and 40 feet thick
44	7	Heaten coal.
45	8	Bottom coal, Dudley.
46	„	Fire-clay associated with Bottom coal.
Iron Stones.		
47	1	"Diamonds" iron stone.
48, 49	„	ditto ditto calcined.
50, 51	2	"Poor Robin's" iron stone, Wolverhampton.
52	„	ditto ditto calcined.

Red Numbers on Specimen.	Black Numbers on Specimen.	
53	3	"Blue flats" iron stone.
54, 55	"	ditto calcined.
56	4	Balls iron stone.
57	"	ditto calcined.
58	5	"Gubbin" iron stone.
59	"	ditto calcined.
60, 61	6	White iron stone, Dudley.
62	"	ditto calcined.
<i>Pig Irons.</i>		
63, 64	1	Mottled pig iron. <i>Strong for forge purposes.</i>
65-67	2	White pig iron, brittle. <i>Good for bell metals.</i>
68, 69	3	Grey pig iron, very strong, <i>for castings.</i>
70-72	4	Refined pig iron, moderately strong.
73	5	Strong forge iron.
74	6	Slags from Puddling furnace, remelted in Blast furnace (<i>Tap Cinder.</i>)
75-77	7	Slag from remelting furnace, also remelted.
<i>Irons.</i>		
78, 79	1	Puddled bars, the first stage after puddling.
80-104	2	Merchant, or rolled iron.
105-6	3	Hoop iron.
107	4	Specimen of boiler plate.
108	5	Book of sheet iron rolled from one piece.
109	6	Specimens of T rails, principally used on Ame- rican lines.
110	7	Double headed, or H rail (London and North- Western section).
111	8	Bridge, or hollow rail (Great Western section).
112	9	Break joint rail (an American patent).
SPECIMENS ILLUSTRATIVE OF THE IRON MADE IN SHROPSHIRE.		
<i>From the Coal Brook Dale Company, Lane End Iron Works, Shropshire.</i>		
113-16	1,2,3,4	Samples of grey pig iron.
117-18	5	White pig iron.
SPECIMENS ILLUSTRATIVE OF THE COAL AND IRON STONES OF NORTH STAFFORDSHIRE.		
<i>Presented by Arthur Sparrow, Esq.</i>		
<i>Coals.</i>		
119	1	Bowling-alley coal, Bentley Colliery.
120	2	Cockshead or Cockshute coal, Bentley Colliery, near Longton.

Red Numbers on Specimen.	Black Numbers on Specimen.	
121	3	"Great row" coal, Foley Colliery, Longton.
122	4	"Moss" coal, ditto.
123	5	"Ash" coal, ditto.
124	6	Sparrow-But mine coal, ditto.
125	7	Cockshead mine coal, ditto.
126	8	Holly-lane coal, ditto.
127	9	Hanbury mine coal, ditto.
128	10	Ten-foot mine coal, ditto.
129	11	Bowling-alley coal, ditto.
130	12	Little mine coal.

Iron Stones.

131-32	1	Knowle's Iron stone, Foley Colliery, Longton.
133	2	Chalky mine Iron stone, ditto.
134-35	3	New mine Iron stone, ditto.
136	"	Ditto calcined, ditto.
137	4	Bassy mine Iron stone, ditto.
138		Ditto calcined, ditto.
139	5	Black band Iron stone, ditto.
140-41	6	Deep mine Iron stone, ditto.
142-44	7	Hanbury mine Iron stone, ditto.
145-47	8	Clay iron stone, ditto.

SPECIMENS OF THE COALS, IRON ORES, &c., OF NORTH WALES.

Flintshire, Denbighshire, &c.

148	1	Moystin coal, N.W.
149	2	Limestone used as "flux."
150-52	3	Clay iron stone nodules.
153	4	Iron coal with seam of cannel coal, Denbighshire.

COALS OF LANCASHIRE.

154	1	Cannel coal, Wigan.
155	2	Orrell coal, ditto.

SPECIMENS OF THE COALS AND IRON ORES OF CUMBERLAND.

Coals.

156-57	1	Blenkinsop coal, Cumberland.
158-60	"	ditto coke, ditto.
161	2	Workington coal, ditto.

Red Numbers on Specimen.	Black Numbers on Specimen.	
<i>Iron Ores.</i>		
162-64	1, 2, 3	Red hæmatite, from Whitehaven.
<p style="text-align: center;">SERIES OF SPECIMENS OF THE IRON ORES OF DERBYSHIRE. <i>Presented by Warrington W. Smyth, M.A., F.R.S., &c.</i></p> <p style="text-align: center;">These specimens are from the collection formed by S. H. Blackwell, esq., for the Great Exhibition of 1851, and are described in the "Memoirs of the Geological Survey: Iron Ores of Great Britain. Part I." The numbers 345 to 402 affixed to the specimens, refer to the number of the specimens and the page of that Memoir.</p> <p style="text-align: center;">The numbers affixed to the specimens refer also to Mr. Blackwell's Catalogue, which is given in the Illustrated Catalogue of the Great Exhibition, vol. I., p. 156.</p>		
		No. p.
165	1	Top measure, of the <i>Brown rake</i> , at Butterley, 345 37
166	2	Bottom measure, of the <i>Black rake</i> , at Butterley, 348 37
167	3	Marble measure, of the <i>Dog-tooth rake</i> , at Staveley, 354 38
168	4	Balls from <i>Dog-tooth rake</i> , at Staveley, 355 "
169	5	Brown measures, from Clay Cross, 357 "
170	6	Cinder measures, from the <i>Nodule rake</i> , Morley Park, 358 "
171	7	Balls, from the <i>Nodule rake</i> , Morley Park, 359 "
172	8	Three-quarter balls, do. do. 360 "
173	9	Whetstone, of the <i>Blackshale rake</i> , near Chesterfield, 361 "
174	10	Lower blues, } 365 "
175	11	Old Man, } 366a "
176	12	Old Woman, } From <i>Blackshale rake</i> , } 366b "
177	13	Red measure, } near Chesterfield. } 370 "
178	14	Dun, } 371a "
179	15	Roof measure. } 372 "
180	16	Iron stone, from the <i>Striped rake</i> , Kirkhallam, near Chesterfield, 375 "
181	17	Balls and bottom measure, from the Greenclose rake, Morley Park, 377 "
182	18	Iron stone, from the <i>Hollyclose rake</i> , Morley Park, 374 "
183	19	Iron stone, from the <i>Black or Ketland's rake</i> , Morley Park, from 379 to 384 "
184	20	Iron stone, from the <i>Baconflitch rake</i> , Alfreton, 385 39
185	21	Iron stone, from the <i>Yew-tree rake</i> , Morley Park, 386 "

Red Numbers on Specimen.	Black Numbers on Specimen.		No.	p.
186	22	Chitters,	387	39
187	23	Tufty balls,	388	"
188	24	Grinder's Wife,	391	"
189	25	Big balls,	392	"
190	26	Ratchell measure, <i>Civilly rake</i> , Stanton,	395	"
191	27	Chitters, ditto,	398	"
192	28	Roof measure, <i>Dalemoor rake</i> , do.,	402	"

NOTTINGHAM AND YORKSHIRE.

ILLUSTRATIVE SERIES OF THE COAL, IRON ORES, AND OF THE IRON MADE THEREFROM, AT THE LOW MOOR WORKS, NEAR BRADFORD, YORKSHIRE.

Presented by W. Fenton, Esq., Manager.

193-94	1	Best coal of the soft kind.
195-96	2	Ditto hard.
		These specimens of coal lie from sixty to 100 yards below the surface, and are from twenty-four to twenty-six inches in thickness in the bed.
197	3	Coke made from the above.
		This is prepared by burning the coal in ovens or in rows on the ground, to purify it from sulphur and other matter which would be injurious to the Iron, it is used in the blast or smelting furnaces.
198	4	Black bed coal.
		This coal lies from forty to forty-two yards above the Best or Better Bed Coal, and the bed is from thirty-four to thirty-six inches in thickness, used for steam engine boilers and house fire.
199	5	Coke made from the above.
		Used for lime kilns, stoves for drying cores, for moulding castings, and other common purposes.
200	6	Black Iron stone.
		This lies immediately above the Black Bed Coal, is found in six distinct strata, and forms a bed of five feet in thickness; the whole being embedded in shale, containing twenty-eight per cent., or seventy-three cwt. to produce one ton of metal.

Red Numbers on Specimen.	Black Numbers on Specimen.	
201	7	<p>White Iron stone.</p> <p>This lies twenty-two yards above the Black Bed Coal, and is found in seven strata, which compass seven feet, and is embedded in shale, containing twenty-eight per cent. metal, but is not so highly esteemed as the Black stone.</p>
202	8	<p>Burnt Iron stone.</p> <p>Prepared by roasting or burning in kilns or in heaps on the ground, to separate all injurious matter, it is then taken to the blast furnaces to be smelted.</p>
203	9	<p>Limestone.</p> <p>This is brought from Skipton, and is used in the Furnaces as flux for the Iron stone; requires twenty-two cwt. for one ton of iron.</p>
204	10	<p>Pig Iron, best quality, or No. 1.</p> <p>Used for small or intricate castings, being the softest metal.</p>
205	11	<p>Pig Iron, second quality, or No. 2.</p> <p>Used for weighty castings, where strength is required.</p>
206	12	<p>Pig Iron, third quality, No. 3.</p> <p>Used for making Bar Iron and other forge purposes, and for large castings.</p>
207	13	<p>Scoria or Dross.</p> <p>Is composed of the argillaceous or earthy part of the Iron stone, combined with Limestone, for which it has a strong affinity, and is used for making roads.</p>
208	14	<p>Refined Iron.</p> <p>Prepared from No. 3 Pig Iron, by being exposed, in small low furnaces, to a powerful blast. These furnaces are called refiners, and the metal when run into moulds is in the second state of manufacture.</p>
209	15	<p>Dross from the refinery.</p> <p>Is the impure matter which runs from the refinery with the metal, but being lighter flows on the surface; it contains from forty to fifty per cent. iron, which may be extracted in the smelting furnaces by the addition of argillaceous matter.</p>
210	16	<p>Puddled Iron.</p> <p>Is iron in the next stage after refined metal, being in a semi-malleable state. After having been stirred in a furnace till it acquires a welding property, it is taken out and flattened under heavy hammers.</p>

Red Numbers on Specimen.	Black Numbers on Specimen.	
211-14	17	Dross from puddling furnace.
215-18	18	Finished Bar and Rod iron.
219	19	Boiler plate.
220-23	20	Knots tied cold.
224-40	21	Sundry specimens tested by hydraulic pressure in a cold state.
SPECIMENS OF THE RAW MATERIALS USED IN THE MANUFACTURE OF IRON AT THE WALKER IRON WORKS, NEAR NEWCASTLE-UPON-TYNE, AND OF THE PIG AND PUDDLED IRON MADE, AS ILLUSTRATIONS OF THE COAL AND IRON DISTRICTS OF NORTHUMBERLAND AND DURHAM. <i>Presented by Messrs. Wilson, Losh, and Bell, Walker Iron Works, Newcastle-upon-Tyne.</i>		
241	1	Newcastle coal.
242	"	Ditto coke.
243	2	Newcastle coal, Washington.
244-46	"	Ditto coke, ditto.
247	3	Coal used for coking, Walker's Colliery, Northumberland.
248	"	Coke from ditto.
249	4	Grey splint coal section, Belaval, Northumberland.
250	5	Clay iron stone band, Hedley Colliery, Northumberland.
251	"	Ditto calcined.
252	6	Scoriæ from heating furnace.
253	7	Slag or cinder from high furnace.
254	8	Foundry pig iron.
255	9	White forge pig iron.
256	10	Puddled iron as it comes from the puddling furnace.
257-58	11	Puddled iron for merchant bars.
259	12	Puddled iron from Stirling's refined metal for rails.
260	13	Stirling's pig metal, refined by oxide of iron.
261	14	Mixture of sawdust and "Black band" used as a lining for pig iron moulds in refining pig iron according to Stirling's process.
262	15	Durham coke, used for cupola smelting.
263	16	Puddled iron from Stirling's refined metal for rails.
264	17	Puddled iron for merchant bars.
265	18	Bar of iron fractured to show resistance to strain.

Red Numbers on Specimen.	Black Numbers on Specimen.	
266	19	Thirty-five specimens of rails, T angles, and angle irons, &c.
267	20	Two iron plates.
268	21	Double T rail bolted together.
<p>SERIES OF SPECIMENS ILLUSTRATIVE OF THE PROCESS OF WASHING SMALL COAL BY MEANS OF BERARD'S MACHINE. <i>Presented by J. Morisson, Esq., 16, Sandhill, Newcastle-upon-Tyne. (The English patentee and improver of Berard's Machine.)</i></p>		
269	1	Sample of small coal as it comes at the pit mouth, containing fragments of iron pyrites, shales, and other impurities.
270	2	Sample of pyrites, shale, and foreign matters washed out of the coal, No. 1.
271	3	Sample of pure or washed coal from which the pyrites and shale have been recovered.
272	4	Coke made from unwashed coal.
273-74	5	Coke made from the washed coal, No. 3.
275-76	6	Coke from coal, prepared by Berard's machine.
<p>COALS, IRON STONES, FIRE-CLAYS, &c., OF SCOTLAND.</p>		
<p>SPECIMENS OF IRON ORES FROM FIFESHIRE.</p>		
277-78	1, 2	Black band iron stone, Mount Melville Mines, St. Andrews.
279-81	„	Ditto calcined.
<p>SERIES OF SPECIMENS OF SANDSTONES, LIMESTONES, SHALES, IRON STONES, AND COALS, ILLUSTRATIVE OF THE GEOLOGICAL STRUCTURE OF THE LANARKSHIRE COAL FIELD. SERIES OF SPECIMENS ILLUSTRATIVE OF THE MANUFACTURE OF PIG IRON, AND THE PROCESS OF PUDDLING, AND OF THE VARIOUS WROUGHT IRON PRODUCTS (RAILS, ANGLE IRON, &c.), MADE AT THE MONKLAND IRON WORKS, LANARKSHIRE. <i>Exhibited at the Dublin Exhibition in 1853, and afterwards presented to the Museum by Mr. W. Murray, Manager of the Monkland Works.</i></p>		
282-84	1-9	Large blocks of sandstones and freestones.
285	10	Ditto of sandstone, with <i>fucoid-like</i> impressions.
286-300	11-25	Large blocks of clay iron stone, and iron stone bands.
301-7	26-32	Specimens of Coal.

Red Numbers on Specimen.	Black Numbers on Specimen.	
<i>Illustrative Collection.</i>		
308	1	Raw black band.
309-10	"	Ditto calcined.
311-12	2	Raw black band, "calder braes."
313-15	"	Ditto calcined.
316	3	Raw soft band, "calder braes."
317	"	Ditto calcined.
318	4	Raw clay band.
319	"	Ditto calcined.
320	5	Limestone used as "flux."
321-24	6	Cinder of pig iron.
325	7	Calcined cinder, technically called "Bull dog."
326	8	Cinder of white iron.
327-30	9	Grey pig iron.
331-33	10	White pig iron.
334-35	11	Refined iron, blown.
336	12	Refined iron, over blown.
337-39	13	Puddled bars.
340-45	14	Mill bars.
346-47	15	Refined iron, nearly made before being squeezed or pressed.
348	16	Specimens of iron in welding process.
349	17	Iron after hammering.
350-58	18	Specimens of rails, T rails, angles, &c.
359	19	Soft coal
360-61	20	Splint coal
		used at Monkland iron works.
N.B.—At the end of the Lower North Gallery will be found a section representing the stratigraphical succession of the Carboniferous formation in Lanarkshire, likewise presented by Mr. Murray.		
IRON ORES, COAL, &C., OF BELGIUM.		
SERIES OF SPECIMENS OF IRON ORES FROM THE VALLEYS OF THE SAMBRE, MEUSE, AND OURTHE, AND OF COAL, COKE, AND LIMESTONE USED IN MAKING IRON AT THE GREAT IRON WORKS OF SERAING, NEAR LIEGE; AND OF THE CINDER, PIG, AND PUDDLED IRON, AND CAST-STEEL PRODUCED THEREFROM.		
362	1	Red oolitic hæmatite (called, locally, " <i>mine rouge</i> "), from Revin.
363-64	2	Brown hæmatite, hydrate of oxide of iron (called, locally, " <i>mine jaune</i> "), Angleur, near Liège.
365	3	Ditto, calcined.
366-67	4	Brown hæmatite, Graux, S.W. of Namur (Sambre and Meuse.)

Red Numbers on Specimen.	Black Numbers on Specimen.	
368	5	Brown hæmatite, St. Maur, Meuse.
369-70	6	Brown hæmatite, Werbomont (Ourthe.)
371	7	Pisolithic hæmatite, Louveigne.
372	8	Brown pisolithic hæmatite, Mellotte.
373	9	Brown pisolithic hæmatite, Malonne, near Namur.
374	10	Brown hæmatite, La Reid.
375-77	11	Clay iron stone, called, locally, "schiste houiller," Mons and Charleroi.
378	12	Ditto, calcined.
379-80	13	Brown hæmatite, Missoul.
381-82	14	Limestone used as flux.
383-84	15, 16	Cinder slag.
385-86	17, 18	Scoriæ cinders.
387	19, 20	White cast iron.
388	21	Superior cast iron.
389-95	22	Specimens of puddled iron.
396-402	23	Various specimens of cast steel.
403	24	Coal employed at Seraing, near Liège.
404	25	Coke, ditto.

IRON ORES OF SWEDEN.

COLLECTION OF IRON ORES. *Presented by Professor
Andreas Grill, of Stockholm, Sweden.*

405	1	Average specimen of magnetic iron from the mine of Silfberg, Dannemora, County of Upsala.
406	2	Specimen of magnetic iron ore from the mine of Herrgrufve, Dalkarlsberg, County of Orebro.
407	3	Specimen of specular iron ore from the mine of Langgrufve, Dalkarlsberg, County of Orebro. Nearly all the iron of this ore is specular iron.
408	4	Specular iron ore from Asboberg, Nora District; one of the best ores in the world.
409	5	Specular iron from Mossaberg, Nora District.
410	5b	Ore from Mossaberg, roasted by means of waste combustion gases from the high furnace.
411	6	Magnetic iron ore from Bispberg, County of Dale- carlia.

COALS OF NEW ZEALAND.

412-14	1, 2, 3	Specimens of coal from New Zealand. <i>Presented by Captain Stokes, R.N.</i>
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PATENT FUELS, &c.

415-16	1, 2	Specimens of patent fuel made by impregnating small coal with tar.
	"	Coke from ditto.
417-18	"	[N.B.—In this case are also two safety lamps, or "Davys."]

WALL-CASE B.

Containing fossil-wood, lignites, peat-charcoal and peat-ash, bog-butter; products illustrative of the destructive distillation of wood, peat, and coal; coals, fire-clays, iron stones, and specimens of the rocks of the Coal Measures from the various Irish Coal-fields; iron ores from various Irish non-carboniferous localities; pig-iron manufactured in Ireland with coal, peat, and wood-charcoal; limestone used as flux and high furnace cinder.

Red Numbers on Specimen.	Black Numbers on Specimen.	
SILICIFIED WOOD, LIGNITE, AND AMBER.		
1-5	1	Silicified wood from Randalstown, county of Antrim.
6-10	2	Lignite, from Sandy Bay, Antrim.
11	3	Lignite, from Rasharking.
12	4	Ditto from Mount Druid, Antrim.
13-20	5	Lignite and amber from the county of Derry.
21	6	Lignite in pipe clay from Ballymacadam, Caher, county of Tipperary.
VARIOUS SPECIMENS OF PEAT, CHIEFLY FROM THE FLAT BOGS IN THE CENTRE OF IRELAND; SPECI- MENS OF THE PEAT-CHARCOAL AND ASH WHICH THEY YIELD.		
22, 23	1	Exceedingly light spongy surface peat, from the immediate neighbourhood of the town of Monasterevan, county of Kildare.
24, 25	„	Charcoal from peat No. 1.
26	„	Ash from ditto.
27, 28	2	Fibrous or flow peat, from Mount Lucas bog, one mile south of Philipstown, King's county.
29, 30	„	Charcoal from peat No. 2.
31	„	Ash from ditto.
32, 33	3	Moderately dense peat, from Mount Lucas bog, King's county.

Red Numbers on Specimen.	Black Numbers on Specimen.	
34, 35	3	Charcoal from peat No. 3.
36	„	Ash from ditto.
37, 38	4	Fibrous or flow peat, from Tichnevin, county of Kildare.
39, 40	„	Charcoal from peat No. 4.
41	„	Ash from ditto.
42, 43	5	Surface peat, from Derrymullen, near Robertstown (formerly the station of the Irish Amelioration Society).
44, 45	„	Charcoal from peat No. 5.
46	„	Ash from ditto.
47, 48	6	Dense peat, from Derrymullen, county of Kildare.
49, 50	„	Charcoal from peat No. 6.
50	„	Ash from ditto.
51-54	7	Light surface peat, from the Wood of Allen, which forms part of the great Timahoe bog, about two miles from Robertstown, county of Kildare.
55, 56	„	Charcoal from peat No. 7.
57	„	Ash from ditto.
58-61	8	Middle layer of light surface peat, from the Wood of Allen, about two miles from Robertstown.
62, 63	„	Charcoal from peat No. 8.
64	„	Ash from ditto.
65, 66	9	Lower layer of the light surface peat, from the Wood of Allen, county of Kildare.
67	„	Charcoal from peat No. 9.
68	„	Ash from ditto.
69-71	10	Good compact peat, from Riversdale Bog, near the town of Kinnegad, and close to Hyde Park Demesne, county of Westmeath.
72-74	„	Charcoal from peat No. 10.
75	„	Ash from ditto.
76-79	11	Exceedingly hard black peat, from Balinoran and Rawson bogs, close to the town of Kinnegad, county of Westmeath.
80	„	Charcoal from peat No. 11.
81	„	Ash from ditto.
82-84	12	Very dense dark brown peat, from Anadruce and Cloncreim, on the Royal Canal, about one mile from Hyde Park, county of Westmeath.
85-87	„	Charcoal from peat No. 12.
88	„	Ash from ditto.
89-91	13	Rather dense peat from the bogs of Rathconnell, Wood Down, and Great Down, two miles east of Mullingar, county of Westmeath.
92-94	„	Charcoal from peat No. 13.
95	„	Ash from ditto.

Red Numbers on Specimen.	Black Numbers on Specimen.	
96-99	14	Fibrous peat from the upper layer of the bog in the immediate neighbourhood of Banagher, King's County.
100-1	"	Charcoal from peat No. 14.
102	"	Ash from ditto.
103-6	15	Rather compact peat, of a reddish brown colour, from the immediate neighbourhood of Banagher.
107-8	"	Charcoal from No. 15.
109	"	Ash from ditto.
110-13	16	Dense fibrous peat from red bog in the immediate neighbourhood of Banagher.
114-15	"	Charcoal from peat No. 16.
116	"	Ash from ditto.
117-20	17	Fibrous, or flow peat from Clonfert Bog, near the mouth of the River Suck, county of Galway.
121-24	"	Charcoal from peat No. 17.
125	"	Ash from ditto.
126-28	18	Rather compact peat, of a light reddish brown colour, from Clonfert Bog, near the mouth of the River Suck, county Galway.
129	"	Charcoal from peat No. 18.
130	"	Ash from ditto.
131-36	19	Exceedingly dense dark blackish brown peat, from Athlone Bog, county of Roscommon.
137-40	"	Charcoal from peat No. 19.
141	"	Ash from ditto.
142-45	20	Dense peat, of a blackish brown colour, most probably from either Curragh or Clonburne Bogs, near Shannon Bridge, at the mouth of the River Suck, county of Roscommon.
146-47	"	Charcoal from peat No. 20.
148	"	Ash from ditto.
149-52	21	A dense peat, of a dark reddish brown colour, employed as fuel in the steam-vessels on the Middle Shannon, and obtained from the bogs along that river.
153-54	"	Charcoal from peat No. 21.
155	"	Ash from ditto.
156-59	22	Light fibrous peat, of a reddish brown colour, employed as fuel in the steam-vessels on the Middle Shannon, and obtained from the bogs along that river.
160-63	"	Charcoal from peat No. 22.
164	"	Ash from ditto.
165-68	23	Very dense peat, of a blackish brown colour, used as fuel in the steam-vessels on the Middle Shannon.

Red Numbers on Specimen.	Black Numbers on Specimen.	
169-71	23	Charcoal from peat No. 23.
172	"	Ash from ditto.
173-76	24	Very dense blackish brown compact peat, employed as fuel in the steam-vessels on the Middle Shannon.
177-79	"	Charcoal from peat No. 24.
180	"	Ash from ditto.
181-84	25	Rather dense reddish brown peat, employed as fuel in the steam-boats on the Middle Shannon.
185-86	"	Charcoal from peat No. 25.
187	"	Ash from ditto.
188-91	26	Rather compact and moderately dense peat, employed as fuel in the steam-boats on the Middle Shannon.
192-93	"	Charcoal from peat No. 26.
194	"	Ash from ditto.
195-98	27	Exceedingly dense peat, of a jet black colour, employed as fuel in the steam-boats on the Middle Shannon.
199, 200	"	Charcoal from peat No. 27.
201	"	Ash from ditto.
202-9	28	Specimens of dense turf from Tarbert, county of Kerry, presented by the Rev. Mr. Fitzgerald.
210-15	29	Specimens of turf charcoal, presented by Mr. Alloway, Ballybrittas, Queen's county.
SPECIMENS OF COMPRESSED PEAT PREPARED BY VARIOUS PROCESSES.		
Samples of compressed peat and of the natural peat from which it was obtained, presented by Capt. Henry Goold.		
216	1	Natural peat.
217	2	Compressed peat from No. 1.
218	3	Charcoal from compressed peat No. 2.
219-23	4-8	Specimens of compressed peat made by Hayes' process.
224-25	9	Samples of turf compressed by the process of J. Mannhardt, of Munich, Bavaria.
226-27	10	Specimens of compressed peat, Hodgson patent.
SPECIMENS OF BUTTER FOUND IN PEAT BOGS, AND COMMONLY KNOWN AS "BOG BUTTER."		
228-29	1, 2	Specimens of bog butter found in the bog of Allen.

Red Numbers on Specimen.	Black Numbers on Specimen.	
SERIES OF SPECIMENS ILLUSTRATIVE OF THE PRO- DUCTS OF THE DESTRUCTIVE DISTILLATION OF PEAT.		
230	1	Peat charcoal employed as manure.
231	2	Peat charcoal employed in dusting moulds for casting.
232	3	Peat tar.
233	4	Rectified paraffine.
234-36	5	Pressed paraffine.
237-42	6	Candles made from paraffine.
243	7	Oil obtained by distillation from turf, called in commerce "fixed oil," used for cleaning and oiling machinery.
244	8	Oil obtained by distillation of turf, called "camphine," used as lamp oil, &c.
245	9	Lightest and most volatile oil obtained in the distillation of turf, applicable as a solvent for caoutchouc and gutta percha.
246	10	Methylic alcohol obtained from the distillation of turf. Commercial names: Wood Spirit, Pyroxilic Spirit or Naphtha, used as a solvent in making varnish, &c.
247	11	Acetic acid or vinegar (specific gravity, 1.018), obtained by the distillation of turf, and made from purified acetate of soda and redistilled.
248-50	12	Impure ammoniacal salts, from the distillation of peat.
251-52	13	Refined ammoniacal salts, from the distillation of peat.
SPECIMENS OF THE BITUMINOUS AND ANTHRACITE COALS, FIRE-CLAYS, IRONSTONES, AND OTHER ASSOCIATED MINERALS AND ROCKS ILLUSTRATIVE OF THE GEOLOGICAL STRUCTURE OF THE IRISH COAL FIELDS.		
A. COALS, &c.		
a. ANTRIM OR BALLYCASTLE COAL FIELD (<i>Bituminous Coal</i>).		
253	1	Potter's clay, Ballycastle Colliery.
254	2	Fire clay from ditto.
255-56	3	Coal shale from ditto.
257	4	Bituminous coal from ditto. West Mine, main seam coal, four feet six inches thick.
258-59	5	Bituminous coal from the same locality.

Red Numbers on Specimen.	Black Numbers on Specimen.	
<i>b. TYRONE COAL FIELD (Bituminous Coal).</i>		
260	1	Bituminous coal from Annagher.
261	2	Bituminous coal from Drumglass.
262-64	3-5	Ditto ditto.
265-70	6	Splint coal from five-foot coal, Barclay pit, town- land Lisnastrane, parish Clonoe.
271-74	7	Shining seam coal from the townland of Anna- gher, parish of Clonoe.
275	8	Screened culm of the nine-foot seam, Coal Island Colliery.
276-78	9	Five-foot coal, Barclay pit, W., townland of Lis- nastrane, parish of Clonoe.
279-84	10-12	Specimens of coal from the same locality.
285	13	Fire clay from Coal Island.
286-87	14	Bituminous coal from ditto.
288	15	Specimen of the "crow" coal employed for burning fire-bricks and tiles at Coal Island.
289-91	16, 17	Fire clay, Coal Island.
292-93	18, 19	Bituminous coal, Coal Island.
294-96	20	Carboniferous shale from ditto.
297	21	Screened culm of the five-foot seam of Coal Island Colliery.
298	22	A large lump of coal from Coal Island.
<i>c. CAVAN ANTHRACITE COAL.</i>		
		Specimens of Anthracite coal from the Lower Silurian rocks in the townland of Kill, county of Cavan, probably the same as that of Dum- fries in Scotland. Presented by E. Hudson, Esq.
299-301	1	Anthracite coal, Kilnalesh, near Ballyjamesduff.
302-8	2	Anthracite, townland of Kill.
<i>d. CONNAUGHT COAL FIELD (Bituminous Coal).</i>		
309-11	1	Bituminous coal from Meenashama pit, county of Leitrim.
312-14	2, 3	Bituminous coal from Seltnaveena pit, county of Leitrim.
315	4	Specimens of the coal of the "third seam" from the detached field, north of the Arigna Valley, Seltannaskeagh Colliery, county of Leitrim.
316-17	5	Specimen of coal from Seltnaveena pit.
318	6	Specimen of coal from the same, but the exact locality not given.

Red Numbers on Specimen.	Black Numbers on Specimen.	
319	7	Specimens of the "kelve" or slaty coal forming the top of the seam in contact with the roof.
320-24	8-12	Coal from the same locality.
325-27	13	Carboniferous shale.
328-29	14	Specimens of the coke made from the third seam coal, Seltannaskeagh Colliery.
330-33	15-17	Specimen of coal from Seltannaskeagh Colliery, county of Leitrim.
334	18	Specimen of the coal of the third seam, showing the character of the superior quality of the southern division of the Connaught coal field, Gubarruda Colliery, valley of Arigna.
335	19	Specimen of the "Rover coal" from the Rover Colliery, valley of the Arigna, townland Lower Rover, county of Roscommon.
<i>e. MUNSTER COAL FIELD (Anthracite or Stone Coal).</i>		
336-37	1, 2	Specimens of the peculiar coal underlying the fire-clay, Lisnacon Colliery.
338	3	Specimens of the riddled culm from the "four-penny vein," Lisnacon Colliery, Kanturk, county of Cork.
339	4	Specimens of the culm of the "sweet vein," used for burning lime, from Dromagh Colliery, Kanturk, county of Cork.
340	5	Specimen of the riddled culm of the "sweet vein," Lisnacon Colliery.
341-43	6, 7	Specimen of the "sweet vein" coal, showing the peculiar joints in the coal, called locally "backs," Lisnacon Colliery.
344	8	Specimen of the coal of the "sweet vein," showing the <i>kelve</i> or slaty coal close to the roof of the seam, Lisnacon Colliery.
345-46	9	Specimen of the coal of the "sweet vein," illustrative of its different characters, Lisnacon Colliery.
347	10	Specimen of the coal of the "four-penny vein," Lisnacon Colliery.
<i>f. LEINSTER COAL FIELD (Anthracite or Stone Coal).</i>		
348-52	1-5	Specimens of anthracite from Rushes Colliery, Queen's County.
353-54	6, 7	Coal seat or fire-clay underlying the three-foot coal at Doonane Colliery.

Red Numbers on Specimen.	Black Numbers on Specimen.	
355-60	8-10	Specimens of coal from the same locality.
361-64	11	Underlying fire-clay or "coal seat" of the four-foot coal, Glen Colliery.
	12, 13	At the end of the Lower South Gallery will be found the two following specimens, showing the relative thickness of the beds of coal at the Castlecomer Collieries. <ol style="list-style-type: none"> 1. Section of the "three-foot coal," with fire-clay, forming the "coal seat," Doonane Colliery, Castlecomer. 2. Section of the "four-foot coal," Jarrow Colliery, Castlecomer. <p><i>Presented by J. B. Wandesforde, Esq.</i></p>
<i>Specimens of the Rocks associated with the Kilkenny Coal Measures.</i>		
365-67	1	Quartz vein in the four-foot coal, Glen Colliery.
368-70	2	Grit, containing carbonate of iron, from the coal measures of Glen Colliery.
371-74	3	Shale overlying the coal and containing impressions of plants, Skehana Colliery, county of Kilkenny.
375-77	4	Sandstones of the coal measure, Skehana Colliery.
378-80	5	"Seat rock" underlying the coal, from Skehana Colliery.
381-82	6	Underlying fire-clay or "coal seat" of the four-foot coal, Jarrow Colliery, county of Kilkenny.
383-85	7	Upper sandstone from ditto.
<i>Supplementary Collection of Coals from the Castlecomer Coal-field, collected by the Officers of the Geological Survey of Ireland.</i>		
386-87	1a, 2a	"841, 842." Anthracite coal, Glen Colliery.
388-89	3a, 4a	"843, 844." Anthracite coal, Jarrow Colliery, county of Kilkenny.
300-92	5a-7a	"845, 846, 847." Coal in "coal seat," Jarrow Colliery.
393-94	8a, 9a	"848, 849." Slate and "seat" rock underlying coal, Jarrow Colliery.
395	10a	"850." Anthracite coal from Skehana Colliery, county of Kilkenny.

Red Numbers on Specimen.	Black Numbers on Specimen.	
396	11a	"851." Anthracite, Monteen Colliery, county of Kilkenny.
397	12a	"852." Anthracite, Cretty Colliery, Queen's county
398	13a	"853." Anthracite, Holly Park Colliery, Queen's county.
399	14a	"854." Anthracite, Massford Old Colliery, Kilkenny county.
400	15a	"856." Anthracite, Geneva Colliery, county of Carlow.
<i>g. TIPPERARY EXTENSION OF LEINSTER COAL FIELD (Anthracite or Stone Coal).</i>		
401-3	1-3	Specimens of the coal of the upper seam from Boulintlea District, Slieve Ardagh Colliery.
404-9	4-9	Anthracite coal, Brook Colliery.
410-14	10	Anthracite, from the Lower Silurian rocks, at Upper Church, eight miles W. of Thurles, county Tipperary.
415	11	Specimen showing the character of the upper seam of coal as usually found in faults, and close to the dislocation of the strata, Slieve Ardagh Colliery.
416-19	12-14	Small coal or culm and "shining balls," used as fuel for domestic purposes, Earl's Hill Colliery, Slieve Ardagh.
420	15	Specimens of the culm used for domestic purposes, from the Boulintlea District.
421	16	Specimen of the culm used for burning lime, from the Boulintlea District.
422	17	Small coal or culm used for burning lime, Glengoole Colliery.
423	18	Small coal or culm used for burning lime, Earl's Hill Colliery.
424-25	19	Specimens of culm used for burning lime, from Glengoole Colliery.
426	20	Specimens illustrative of the variations in quality which the "Firing culm seam" sometimes undergoes.
427-38	21-32	Various specimens of fire-clay and other rocks in connexion with the Slieve Ardagh Colliery.
439-47	33-37	Specimens of coal and of various rocks connected with the Coalbrook Colliery.
	38, 39	N.B.—At the end of the Lower South Gallery will be found two large blocks of Anthracite, showing the thickness of the bed at Earl's Hill Colliery, Slieve Ardagh.

Red Numbers on Specimen.	Black Numbers on Specimen.	
ILLUSTRATIONS OF THE PRODUCTS OF THE DESTRUCTIVE DISTILLATION OF COAL.		
448	1	Crude coal tar.
449	2	Crude naphtha.
450	3	Oil from naphtha still.
451	4	Distilled tar from retort after distilling off naphtha.
452	5	Pitch oil (first running of still).
453	6	Coke oil.
454	7	Crude shale spirit.
455	8	Rectified coal naphtha.
456	9	Rectified coal naphtha.
457	10	Paraffine oil obtained from cannel coal.
458	11	Paraffine obtained from cannel coal.
459	12	Pitch obtained from the distillation of coal tar.
460	13	Charcoal remaining from pitch.
SERIES OF SPECIMENS SHOWING THE COMPARATIVE VALUE OF COALS EMPLOYED IN THE PRODUCTION OF VOLATILE OILS AND GAS.		
461	1	Boghead coal.
462	2	Newcastle coal. Pelton main coal.
463	3	Mickley coal, Newcastle.
464	4	Carlisle coal.
465	5	Wigan cannel coal.
ILLUSTRATIONS OF THE PRODUCTS OF THE DESTRUCTIVE DISTILLATION OF WOOD.		
<i>(Comparative Collection.)</i>		
466	1	Wood specimen.
467	2	Wood charcoal.
468	3	Wood tar.
469	4	Wood naphtha.
470	5	Crude pyroligneous acid.
471	6	Distilled pyroligneous acid.
472	7	Acetate of lime (black lime ley).
473	8	Acetate of lime (white lime ley).
474	9	Acetate of soda.
475	10	Purified acetate of soda,
476	11	Acetic acid.
477	12	Brown sugar of lead.
478	13	White sugar of lead.
479	14	Verdigris.

Red Numbers on Specimen.	Black Numbers on Specimen.	
B. IRONSTONES, FIRE-CLAYS, LIMESTONES USED AS FLUX, PYRITES, PIG-IRON, AND HIGH-FURNACE CINDER.		
ANTRIM COAL FIELD.		
490-81	1	Massive clay ironstone, from the beds associated with coal measures. Ballycastle Colliery.
482	2	Ferruginous shale, from the coal measures, Ballycastle.
483	3	Ironstone band, Fair Head, Ballycastle.
484	4	Ironstone band, calcined, from the same locality.
485	5	Ironstone balls.
486-88	6	Ferruginous shale, Ballycastle.
489-90	7	Ferruginous sandstone, from the coal measures, Ballycastle.
491-92	8	Clay ironstone balls (earthy carbonate of iron) Ballycastle.
493-95	9	Nodules of red hæmatite, Fair Head, Ballycastle.
496-506	10-12	Band ironstone.
The above series of iron ores was presented to the Museum by W. Townsend, Esq.		
TYRONE COAL FIELD.		
507-11	1	Clay ironstone balls found in the gray slate clay of the coal measures, Coal Island.
512-16	2	Massive clay ironstone (earthy carbonate of iron passing into red hæmatite, Coal Island Colliery.
CONNAUGHT COAL FIELD.		
517-19	1, 2	Specimens of the limestone used as "flux" at Drumshambo Charcoal Iron Works about the year 1763.
520-21	3	Specimens of the calcined clay ironstone, from Slieve-an-Iërin, or Iron Mountain, employed at the Drumshambo Charcoal Iron Works, 1766.
522-29	4, 5	Clay ironstone balls (earthy carbonate of iron) from Slieve-an-Iërin, county of Leitrim.
530-32	6, 7	Specimens of the cinder of the charcoal iron made about the year 1766.
533-39	8	Samples of gray pig-iron made at the Arigna Iron Works, county Roscommon.
540-45	9, 10	Specimens of the cinder or slag from the Arigna Iron Works, county Roscommon.

Red Numbers on Specimen.	Black Numbers on Specimen.	
546-48	11	Specimens of calcined massive clay ironstone (earthy carbonate of iron), from the beds at Cornagee, valley of the Arigna.
549-51	12	Specimens of calcined ironstone balls, from Altagowlan and from the bed of the Arigna river.
552-55	13, 14	Specimens of clay ironstone balls found in beds in the shale at Altagowlan, valley of the Arigna, county of Leitrim.
556-57	15	Clay ironstone balls, forming thin bands in the black shale over the coal and underlying the "great sandstone" on the colliery road above the Arigna Iron Works.
558-60	16	Grey and white pig-iron, made at the Creevelea Iron Works, from the Tullinwannia bed, and ball-clay ironstone.
561-62	17	Specimen of pig-iron from the same locality.
563-65	18	Limestone employed as "flux" in the manufacture of pig-iron at the Creevelea Iron Works, county Leitrim.
566-72	19, 20	Cinder or slag, obtained with the ball, and massive red ironstone, found at Tullinwannia, and smelted at the Creevelea Iron Works.
573	21	Clay ironstone balls, overlying the alum shale, and underlying the coal measures, Tullinwannia.
574-76	22	Specimens of the infusible mass of the iron slag, commonly called a "Horse," which accumulates in the bottom of furnaces, and stops, or, as it is commonly called, "gobs up" the furnace. Arigna Iron Works.
577-79	23	Massive clay ironstone, from the beds resting on the alum shale, Tullinwannia, Creevelea Iron Works.
580-81	24, 25	Calcined clay ironstone ball, from Tullinwannia, calcined at the Creevelea Iron Works.
582	26	Decomposing alum shale, overlying the fire-clay. Tullynamoyle, Creevelea Iron Works.
583-85	27	Fragments of limestone balls, which occur in a blue calcareous shale at Tullynamoyle, Creevelea Iron Works.
586	28	Clay ironstone ball, enveloped by a thin shell of iron pyrites. Cornagee, valley of the Arigna, county Leitrim.
587-89	29	Fragments of clay ironstone balls, showing the external rind or envelope of iron pyrites. Cornagee.

Red Numbers on Specimen.	Black Numbers on Specimen.	
590	30	Hard slate, resting on fire-clay, which decomposes into the accompanying alum ore. Tullynameyle.
591-92	31	Fire-clay, resting upon ferruginous shale, and underlying the decomposing alum shale. Tullynameyle.
C. MUNSTER COAL FIELD.		
593	1	Hæmatite, from Ironstone Hill, one mile from Mallow.
594-96	2	Massive clay ironstone, forming beds or bands in the overlying shale of the "sweet vein" at Dromagh Colliery, Kanturk.
597-98	3	Clay ironstone ball, from the coal measures of Dromagh.
599	4	Massive clay ironstone, forming thin bands in the shale overlying the "fourpenny vein" at Lisnascon Colliery, near Kanturk.
600-2	5	Inferior clay ironstone, from the coal measures at Dromagh Colliery, Kanturk.
603-4	6	Nodules of iron pyrites, occurring in the "sweet vein," Dromagh Colliery.
LEINSTER COAL FIELD.		
605-8	1	Clay ironstone balls, found in the shale of the coal measures, near Castlecomer.
609-10	2	Specimens of clay ironstone, Jarrow Colliery, county of Kilkenny.
611-13	3-5	Clay ironstone, from Skehana Colliery.
614-15	6	Clay ironstone, from Massford Colliery.
616	7	Nodules of rhombic pyrites, from the "four-foot" coal. Jarrow Colliery.
617-18	8	Nodules of rhombic pyrites, found embedded in the coal. Doonane, Queen's County.
619	9	Nodules of rhombic pyrites, found embedded in the coal, Glen Colliery.
620-22	10, 11	Clay ironstone balls, found in the shale of the coal measures at Doonane.
<i>Supplementary Collection of Clay-Ironstones from the Castlecomer Coal-field, collected by the Officers of the Geological Survey of Ireland.</i>		
623	16a-	"837, 838, 839, 840." Clay-ironstone from Skehana Colliery.
624-26	19a	
627	20a	
		"855." Clay-ironstone from Massford Old Colliery.

Red Numbers on Specimen.	Black Numbers on Specimen.	
TIPPERARY EXTENSION OF LEINSTER COAL FIELD.		
628	1	Nodules of bisulphuret of iron (rhombic pyrites), found embedded in the coal of the under seam, called locally "brass balls."
629	2	Clay ironstone balls, found in the shale forming the roof of the upper seam.
630-33	3	Clay ironstone, forming thin beds, interstratified with the shale forming the roof of the upper seam.
634	4	Fire clay, forming the main "coal seat" at Earl's Hill Colliery, showing the presence of hæmatite.
635-36	5	Nodules of hæmatite (<i>impure</i> hydrated peroxide of iron) found in the main "coal seat" at Earl's Colliery.
IRON ORES FROM VARIOUS IRISH LOCALITIES, NOT INCLUDED IN THE FOREGOING CARBONIFEROUS DISTRICTS.		
<i>King's County.</i>		
637	1	Ferruginous peat, used as an agent for the purification of coal gas, &c., used to adulterate guano?
<i>County Limerick.</i>		
638	1	Hæmatite from Ballingard, seven miles from Limerick.
<i>County Longford.</i>		
639-40	1, 2	Specimen of brown hæmatite from Cleenragh, barony of Granard, presented by Mr. Porter.
641-43	3	Brown hæmatite from the same locality, presented by C. Miller, Esq.
<i>Queen's County.</i>		
644	1	Hæmatite, from Dysartenos, near the Rock of Dunamase.
645-46	2	Dysartenos hæmatite, calcined.
647-49	3	Ferruginous clay, derived from the decomposition of beds of hæmatite, interstratified with bands of grit. Dysartenos.

Red Numbers on Specimen.	Black Numbers on Specimen.	
650-51	4	Bog iron ore (<i>impure</i> hydrated peroxide of iron).
652	5	Pig-iron, made from bog iron ore with wood charcoal, Clonmore, co. Mayo.
653-54	6	Pig-iron, made with <i>raw turf</i> , from a mixture of the clay ironstone of the Kilkenny coal measures and hæmatite from Dysartenos, Queen's county.
655-60	7	Specimens of cinder obtained in making the above pig-iron.
<i>County Wexford.</i>		
661	1	Magnetic iron ore, from Courtown Harbour.
<i>County Wicklow.</i>		
662	1	A large ball of magnetic iron ore (<i>in the low corner of the case</i>) from the working in search of lead made at Ballintemple, near the Wooden Bridge.
663-64	2	Magnetic iron ore, containing copper pyrites from old workings in search of copper at Moneyteige, South.
665	3	Gossanlike hæmatite, accompanying the magnetic iron at Ballintemple, near the Wooden Bridge.
666	4	Magnetic iron ore, partially decomposed, from the working for lead at Ballintemple.
667-69	5	Balls of magnetic iron, and portion of the same ore broken off. Ballintemple.
630-31	6	Brown hæmatite, from Kilbride.
632-40	1-9	SERIES OF NINE SPECIMENS ILLUSTRATIVE OF THE STAGES OF MANUFACTURE OF SHOVELS MADE FROM SCRAP-IRON. [PRESENTED BY MESSRS. M'GARRY AND SONS, PALMERS-TOWN MILLS, COUNTY OF DUBLIN.]

LOWER CROSS GALLERY.

NORTH END OF THE GALLERY.

SERIES OF MODELS AND SPECIMENS ILLUSTRATING THE VARIOUS PROCESSES FOR EXTRACTING IRON FROM ITS ORES, AND CONVERTING IRON INTO STEEL.

Red Numbers on Specimen.	Black Numbers on Specimen.	
EXTRACTION OF IRON.		
1	1	Model of a Scotch blast iron furnace in which the hot blast is used.
MANUFACTURE AND PRODUCTS OF STEEL. <i>See also Table-Case 1, p. 34.</i>		
2	1	Dissecting model of a converting furnace for the manufacture of blister steel by the English, or cementation process.
		N.B.—The glass-case upon which the model stands, contains the following specimens:—
3	6	Firingstone, a kind of sandstone from the coal measures, for lining converting furnace.
4	22	Charcoal used in the cementing process.
5	23	Puddling furnace cinder, one of the materials used in the converting furnace.
6	24	Cinder formed in the converting furnace.
7	2	Model of melting house for making cast-steel.
		N.B.—The glass-case upon which the model stands contains the following specimens:—
8	7	New melting-pot with lid and support, used to melt the blister steel.
9	8	An old melting-pot and lid which has been used in melting steel.
10	9	Ingot mould in which the steel is cast into bars for hammering, rolling, &c.
11	10	Ingot of cast-steel.
12	3	Forge-hearth for heating steel ingots, preparatory to being hammered into bar steel.
13	4	Hearth for heating steel used in rolling sheet steel.

Red Numbers on Specimen.	Black Numbers on Specimen.	
14	5	Model, showing— <i>a.</i> A set of tilt hammers for forging steel. <i>b.</i> Shears for cutting bars. <i>c.</i> System of rolls for making rods and bars.

These models represent the actual machinery employed in the Works of Messrs. Naylor and Wickers, Sheffield, under whose direction they were specially made for the Museum.

STAIRS LEADING FROM LOWER CROSS GALLERY TO LOWER NORTH GALLERY.

SPECIMENS OF ARTISTIC CASTINGS IN IRON.

See also Table-case 1, p. 33.

Near WALL-CASE A (*Lower N. Gallery, right hand*) the following specimens are exhibited:—

1	1	British Coat of Arms, in bronzed cast-iron. [Presented by the Falkirk Iron Company, Scotland.]
2	2	Statuette of the late Sir Robert Peel, in bronzed cast-iron. [From the Coalbrookdale Works.]
3	3	Plate, in bronzed cast-iron, ornamented with wreathed foliage in imitation of Florentine work. [Presented by Mr. W. Pierce, Jermyn-street, London.]
4	4	Iron casting, in alto-relievo, after Leonardo da Vinci. [From the Royal Iron Foundry of Berlin.]
5	5	Casting of part of a gate in imitation of hammered work in wrought-iron, Renaissance style, probably Florentine. [Presented by the Coalbrookdale Company.]
6	6	Cast-iron statue of a Nymph. [Presented by the Falkirk Iron Company.]
7, 8	7	Iron casting, after the Pompeii Mosaic "Cave Canem," at the entrance of the Prothyrum (vestibule) of the Tragic Poet's house. [Presented by the Coalbrookdale Company.]
9-13	8	Plates of cast-iron for flooring, &c. [Presented by the Coalbrookdale Company.]

Red Numbers on Specimen.	Black Numbers on Specimen.	
		Near WALL-CASE B (<i>Lower N. Gallery, left hand.</i>)
		SPECIMENS OF RAILWAY BOLTS, RAILWAY CARRIAGE SPRINGS, TELEGRAPHIC CABLES, &c.
14	1	On a board: a collection of 158 specimens of rail- way screws and railway bolts. [Presented by Mr. John Hawkins, manufacturer, in Birming- ham.]
15	2	Specimens of submarine telegraphic cables. [Pre- sented by R. Newall and Co., Gateshead-on- Tyne, patentees and manufacturers.]
		Total length of cable.
		1. Prince Edward's Island, New- foundland, . . . 150 miles.
		2. England and Holland, . . . 550 "
		3. Across the Mississippi, . . . 2 "
		4. Denmark, across the Belt, . . . 16 "
		5. Dover and Calais, . . . 25 "
		6. Dover and Ostend, . . . 70 "
		7. Port Patrick and Donaghadee, . . . 25 "
		8. Across the Zuyderzee, . . . 5 "
		9. England and Holland, . . . 550 "
16-25	3	Collection of railway carriage springs.
26	4	Buffer-plate for railway carriage.
27	5	Cramping-nut for ditto. [Deposited in the Mu- seum by the Royal Dublin Society.]

LOWER NORTH GALLERY.

TABLE-CASE 1.

Containing: 1, Specimens of Ornamental Cast-iron; 2, Specimens of Swedish Iron and Steel, and Tools used in the Manufacture of Cast-steel.

Red Numbers on Specimen.	Black Numbers on Specimen.	
<i>SIDE MARKED A.</i>		
MANUFACTURE AND PRODUCTS OF STEEL.		
(See also p. 31.)		
1	25	Scales formed in forging steel.
2		Card of models of tools used in the melting-house in the manufacture of cast-steel.
	11	Props for supporting forge hammer.
	12	Melting-pot.
	13	Pulling-out tongs.
	14	Charger for feeding melting-pot.
	15	Teaming tongs.
	16	Poker for arranging the fire.
	17	Bars for removing slags from melting-pots.
	18	Tongs for removing the ingots.
	19	Ingot moulds with binding cramps and wedges.
	20	Furnace hammers.
	21	Ladle to smoke the ingot moulds with tar to pre- vent the adhesion between the melted steel and the mould.
3-30	26	Collection of ends of bars of Swedish iron, upon which are stamped the marks of the various forges from which the iron comes, with corres- ponding bars ends of blister steel.
31-41	27	Turning tools.
42, 43	28	Nail cutters.
44	29	Cast-steel in bars: suited for dies.
45	30	" " axes.
46-49	31	" " edge tools.
50-52	32	" " drills.
<i>SIDE MARKED B.</i>		
53-55	33	" " taps.
56-58	34	" " engineering chisels.
59, 60	35	" " files.

Red Numbers on Specimen.	Black Numbers on Specimen.		
61	36	Cast-steel in bars: suited for plane irons.	
62	37	" " coach springs.	
63, 64	38	" " gouges.	
65	39	Cast-steel in sheets: " circular saws.	
66	40	" " reaping hooks.	
67	41	" " shovels.	
68	42	" " springs.	
69	43	" " engravers' plates.	
70	44	" " ginsaws.	
71	45	" " bottle-jack springs.	
72-79	46	" " pens.	
80	47	Swedish iron: " screws.	
81-107	48	On a card:	
		Best cast-steel, " drawing wire.	
		" " hackle pins, files,	
		" " spirals, springs,	
		" " needles, &c.	
108-15	49	Extra cast-steel, " for turning tools.	
116-17	50	" " mill picks.	
118	51	" " dies.	
119-20	52	" " planing tools.	
121	53	" " axes.	
122	54	" " razors.	
123-25	55	" " nail cutters.	
126	56	" " edge tools.	
127-28	57	" " gouges.	
129	58	" " plane irons.	
130-31	59	" " chisels.	
132-34	60	" " taps.	
135-37	61	" " drills.	
		[Presented by Messrs. Naylor and Wickers, Sheffield.]	
138	9	<i>ON THE TOP OF THE CASE.</i> A Vase in cast-iron, after the antique. [From the Royal Berlin Iron Foundry.]	
139-40	10	<i>UPPER PART OF CASE.</i> Broaches in cast-iron. [From the Royal Berlin Iron Foundry.]	
141	11	The dancing figure, after Leopold Robert's "The Harvesters."	
142	12	Two goats in cast-iron. [By Mr. Zimmerman, Frankfort on the Oder.]	
143	13	Specimen of iron casting from the sand; imitation of Renaissance hammered work. [From Messrs. Hoole, Robson, and Hoob's, Green-lane Works, Sheffield. Presented by the Science and Art Department.]	

Red Numbers on Specimen.	Black Numbers on Specimen.	
144-52	1-9	A collection of screws made, according to Mr. M'Cormick's patent, by the pressure of red hot iron between chilled iron dies. [Presented by John Cameron, Esq., Fleet-street, Dublin.]
TABLE-CASE 2.		
Containing: 1, specimens of Styrian "Natural Steel," and of British "Blister Steel." 2, a collection of Cast-steel, Edge Tools, Hammers, Files, &c.		
UPPER PART OF CASE.		
1-44	1-44	Specimens of natural steel from the Imperial Austrian Works of Weyer, in Styria.
"NATURAL STEEL."		
The justly celebrated steel made in Styria, Carniola, and the Tyrol, is obtained from cast-iron of extraordinary purity, made from sparry carbonate of iron or "Spathic Iron," which forms very thick beds amongst the Grauwacke rocks and Alpine limestones. Rich hæmatites, or hydrated peroxide of iron, occurring under similar circumstances, are also employed.		
45-47	1-3	Specimens of British blister steel.
ILLUSTRATIONS OF SADDLERS' IRONMONGRY.		
48-51	1	Stirrups in the various stages of making. [Presented by Messrs. T. and S. Pim, Mountmellick.]
52-54	2	Snaffle bits, ditto.
55-57	3	Bits, ditto.
SIDE MARKED A.		
58-110		COLLECTION OF SPECIMENS OF CAST-STEEL AND EDGE TOOLS. [Presented by Messrs. Turton and Sons, Sheffield.]
	1	Iron for American axe.
	2	" " cut and double iron.
	3, 4	" Screw auger.
	5	Cast-steel for paring gouge.
	6	" for socket chisel.

Red Numbers on Specimen.	Black Numbers on Specimen.		Red Numbers on Specimen.	Black Numbers on Specimen.
	7	Iron for mortice chisel.		
	8	Mould for firmer chisel.		
	9	Steel for mortice chisel.		
	10	Cast-steel for firmer chisel.		
	11	„ for millwright's chisel.		
	12	Mould for millwright's chisel.		
	13	Iron for socket chisel,		
	14	Cast-steel for paring gouge.		
	15	Cast-steel for paring chisel.		
	16	Mould for ditto.		
	17	Mould for socket chisel.		
	18	Cast-steel for American axe.		
	19	Mould for mortice chisel.		
	20	Steel for screw auger.		
	21	Mould for shell auger.		
	22	Iron for mortice chisel.		
	23	Imperial gouge.		
	24	Long paring gouge.		
	25	Mould for American axe.		
	26	Imperial gouge.		
	27	Millwright's chisel.		
	28	Imperial chisel.		
	29	Socket chisel.		
	30	Cut-iron.		
	31	Millwright's gouge.		
	32	Mortice chisel.		
	33	Long paring chisel.		
	34	Double tool, paring and mortice chisel.		
	35	Double tool, screw and shell auger.		
	36	American axe.		
	37	Mould for cut and double iron.		
	38	Iron for American axe.		
	39	Cast-steel for firmer gouge.		
	40	Mould for back iron.		
	41	Iron for American axe.		
	42	Steel for back iron.		
	43	Iron for shell auger.		
	44	Cast-steel for cut and double iron.		
	45	Iron for back iron.		
	46	Mould for millwright's gouge.		
	47	Steel for shell auger.		
	48	Mould for firmer gouge.		
	49	Mould for screw auger.		
	50	Double iron.		
	51	Eye for screw auger.		
	52	Screw auger.		
	53	Carpenter's shell auger.		

Red Numbers on Specimen.	Black Numbers on Specimen.	
<i>SIDE MARKED B.</i>		
111-19	1-9	Hammers.
120-203	1-83	Specimens of rasps and files, in cast-steel, from the Cyclops Iron Works, Sheffield. [Deposited by the Royal Dublin Society.]
<i>TABLE-CASE 3.</i>		
Containing: 1, Specimens of Bar Iron, and Steel made therefrom and used for Needles, Chronometers, Musical Wires, Hackles, &c., and also various Specimens of these articles. 2, a Collection showing all the Stages of Manufacture in Needle Making. 3, a complete Series, illustrating the Manufacture of Steel Pens.		
<i>UPPER PART OF CASE.</i>		
ILLUSTRATIONS OF STEEL SPRINGS AND OF STEEL WIRE, AND ITS APPLICATIONS TO THE MANUFACTURE OF COMBS, HACKLES, &c.		
1-9	1	Steel springs for carriage cushions, &c.
10	2	Small brass spring.
11-51	3	Box containing specimens of the best cast-steel wire, made from the cast-steel exhibited in the case.
52-78	4	Tray containing needles of every size for combs and hackles, used in the combing of wool and hackling of flax.
79	5	Large hackle for flax, mounted on a mahogany frame.
80	6	Small hackle for ditto, mounted on a mahogany and tin frame.
81	7	Part of a machine comb, for wool.
82-86	8	Smaller combs of different sizes, mounted on a brass frame, &c. [Prepared for the Museum by Messrs. Cocker and Sons, Atlas Works, Hathersage, Derbyshire.]
<i>SIDE MARKED A.</i>		
ILLUSTRATIONS OF THE MATERIALS AND PRODUCTS OF THE MANUFACTURE OF MUSIC AND CHRONOMETER WIRES AND NEEDLES.		
87	1	L. Bar iron.
88	2	L. Iron converted into steel,

Red Numbers on Specimen.	Black Numbers on Specimen.	
89	3	C.L. Bar iron.
90	4	C.L. Bar iron, No. 2, converted into steel.
91	5	Cast-steel from bar No. 2.
92	6	Cast-steel from bar iron, first quality.
93	7	H.L. Bar iron.
94	8	H.L. Bar iron converted into steel.
95	9	K.B. Iron.
96	10	K.B. Iron converted into steel.
97	11	K.B. Bar iron.
98	12	K.B. Bar iron converted into steel.
99	13	Cast-steel from K.B. iron.
100	14	Cast-steel from K.B. for second quality steel.
101	15	Extra best cast-steel for fine tools, &c.
102-06	16	Specimens of hammered steel.
107	17	Steel dust collected by powerful fans in the grinding of needle points, and which formerly caused the grinders' asthma.

ILLUSTRATIONS OF STEEL WIRE.

108-13	18	A stand holding coils of steel wires of various sizes.
114	19	A wire drawer.
115	20	Chronometer wires.
116-17	21	Reel wires.
118	22	Music wires.
119-27	23	Cast-steel flat springs for ladies' hoops, &c.
128	24	CASE DIVIDED INTO 35 COMPARTMENTS, AND ILLUSTRATING ALL STAGES OF MANUFACTURE IN NEEDLE MAKING.
		1. Wire cut the length of two needles.
		2. " straightened.
		3. " pointed.
		4. " stamped.
		5. " eyed.
		6. " threaded for filing.
		7. " filed on the sides.
		8. " broken in two.
		9. " filed on the head.
		10. Needles prepared for drilling.
		11. " drilled when soft.
		12. " hardened.
		13. " tempered.
		14. " straightened.
		15. Finishing, first emery.
		16. " second emery.

Red Numbers on Specimen.	Black [Numbers] on Specimen.			
		17. Finishing, third emery.		
		18. „ fourth emery.		
		19. „ fifth emery.		
		20. „ glazed.		
		21. „ headed.		
		22. „ blued to drill.		
		23. „ drilled.		
		24. „ blue taken off.		
		25. „ first finish.		
		26. „ second finish.		
		27. „ third finish.		
		28. „ fourth finish.		
		29. „ papered.		
		30. „ labelled.		
		31. „ wrapped.		
		32-35. Cards exhibiting various kinds of needles and wrappers used in the trade.		
129-30	25	Tray containing two ladies' needle cases.		
131-54	26-27	Trays containing four large needle boxes, two of them containing smaller ones, showing the various styles of ornamentation.		
155-58	28	Four small boxes, ditto. [The whole of the Collection in this side of the case was also prepared for the Museum by Messrs. Cocker and Sons, Atlas Works, Hather- sage, Derbyshire.]		
<i>SIDE MARKED B.</i>				
ILLUSTRATIONS OF THE MANUFACTURE OF STEEL PENS. [Presented by J. Gillot, Manufacturer, Birmingham].				
159	1	Sheet of steel as obtained from the maker.		
160	2	„ cut into strips.		
161	3	„ annealed.		
162	4	„ with scales removed.		
163	5	Rolled steel, ordinary thickness.		
164	6	Rolled steel, very thin.		
165	7	Scrap strips after the blanks are cut out.		
166	8	Box in which the pens are hardened.		
167	9	Pounded crucible, with which the pens are scoured.		
168	10	A bottle of pen varnish, consisting of sheel-lac dissolved in spirit of wine and wood spirit.		
169-70	11	Wheels employed for grinding and polishing pens.		
171-72	12	Tools used in the process of grinding and polish- ing pens.		

Red Numbers on Specimen.	Black Numbers on Specimen.		
	13	SERIES IA.—No. 303 PENS (NIB OR SLIP PENS).	
173		1. Pen, cut out.	
174		2. „ side slit.	
175		3. „ pierced.	
176		4. „ annealed.	
177		5. Pen, marked.	
178		6. „ raised.	
179		7. „ hardened.	
180		8. „ tempered.	
181		9. „ scoured.	
182		10. „ ground.	
183		11. „ crossed.	
184		12. „ slit.	
185		13. „ coloured.	
186		14. „ varnished.	
	14	SERIES IB.—No. 351 PENS (NIB OR SLIP PENS).	
187—		Fourteen boxes representing the various stages of manufacture as in the former series.	
200			
	15	SERIES IIA.—15 BOXES OF THE ORDINARY BARREL OR MAGNUM BONUM PENS, IN THEIR VARIOUS STAGES OF MANUFACTURE.	
201		1. Pen, cut out.	
202		2. „ side slit.	
203		3. „ pierced.	
204		4. „ annealed.	
205		5. „ marked.	
206		6. „ raised.	
207		7. „ turned over.	
208		8. „ hardened.	
209		9. „ tempered.	
210		10. „ scoured.	
211		11. „ ground.	
212		12. „ crossed.	
213		13. „ slit.	
214		14. „ coloured.	
215		15. „ varnished.	
	16	SERIES IIB.—LARGE BLACK SWAN QUILL BARREL PENS.	
216		1. Pen, cut out.	
217		2. „ side pierced.	
218		3. „ pierced.	
219		4. „ side slit.	

Red Numbers on Specimen.	Black Numbers on Specimen.	
220		5. Pen, annealed.
221		6. „ marked first.
222		7. „ marked.
223		8. „ raised.
224		9. „ turned over.
225		10. „ hardened.
226		11. „ tempered.
227		12. „ scoured.
228		13. „ straight ground.
229		14. „ cross ground.
230		15. „ side cut.
231		16. „ slit.
232		17. „ coloured.
233		18. „ bright ground.
234		19. „ bright heel ground.
235		20. „ lackered.

CARDS CONTAINING VARIOUS SERIES OF METALLIC PENS
ISSUED BY MR. GILLOT.

236	17	Sample card, containing a series of 75 steel pens issued in June, 1852.
237	18	Card of the 80 various kinds of pens issued in June, 1854.
238	19	Card of 54 pens issued in 1856.
239	20	Sample card, containing 58 metallic pens issued in 1856. “ This sample card contains all the best quality metallic pens, in universal demand, as improved and revised during the past thirty years.”

TABLE-CASE 4.

Containing: 1, Specimens illustrative of the various Methods of protecting Iron from oxidation. 2, Irish Collection of the Ores of Iron used in the Arts, or possessing a scientific interest.

SIDE MARKED A.

SPECIMENS ILLUSTRATIVE OF THE VARIOUS METHODS OF PROTECTING IRON FROM OXIDATION, BY COATING WITH GLASS OR ENAMEL, &c.

1-8	1	Culinary ware, covered with enamel.
9-10	2	Iron pipes for water supply, covered with enamel.

Red Numbers on Specimen.	Black Numbers on Specimen.	
<i>SIDE MARKED B.</i>		
SPECIMENS ILLUSTRATIVE OF THE VARIOUS METHODS OF PROTECTING IRON FROM OXIDATION, BY COATING WITH OTHER METALS.		
11-25	1	Specimens of telegraph wires of various sizes.
26-49	2	Specimens of telegraph wires coated with zinc. [Presented by J. Morton and Co., Leeds.]
50	3	Specimen of plated wire cordage.
51-52	4	Ditto, coated with zinc.
53-59	5	Specimens of various kinds of wire cordage.
60-64	6	Ditto, coated with zinc. [Presented by R. S. Newal and Co., Gateshead-upon-Tyne.]
<i>UPPER PART OF CASE.</i>		
COLLECTION OF IRISH SPECIMENS OF THE DIFFERENT ORES OF IRON EMPLOYED IN THE ARTS FOR THE PRODUCTION OF THE METAL, OR FOR OTHER PURPOSES.		
65-66	1	Mispickel, arsenical iron pyrites, Faithlegg, Waterford.
67-70	2	Ditto, Faithlegg
71-72	3	Iron pyrites on slate, Moneyteige, Wooden Bridge, Co. Wicklow.
73	4	Iron pyrites, Connoree Mines, Wicklow.
74	5	Iron pyrites on limestone, Co. Dublin.
75-77	6	Iron pyrites from Dungiven, Derry. Ditto, Dunhay, Derry. Ditto, Ballynascreen, Derry.
78-79	7	Cubic iron pyrites, with magnetic iron pyrites, Co. Fermanagh.
80	8	Magnetic iron pyrites, Moneyteige, Co. Wicklow.
81-82		Rib of iron pyrites and magnetic iron, Moneyteige.
83	9	Cast of iron pyrites in yellow sandstone, Kilkenny.
84-86	10	Iron pyrites in lower limestone shale, Co. Dublin.
87	11	Magnetic iron in slate, Croaghay, Croagpatrick.
88-90	12	Magnetic iron, Island Muck, Co. Antrim.
91	13	Magnetic iron, Courtown Harbour, Co. Wexford.
92	14	Magnetic iron sand, coast near Courtown Harbour, Co. Wexford.
93-94	15	Micaceous iron ore, Knockbrack, Co. Wexford.
95	16	Micaceous iron ore, Island Magee, Co. Antrim.
96	17	Micaceous iron ore, from Old Red Sandstone, Castlebridge, Co. Wexford.
97	18	Meteoric stone? Co. Limerick.
98-102	19	Brown hæmatite, Co. Derry.

Red Numbers on Specimen.	Black Numbers on Specimen.	
103-4	20, 21	Brown hæmatite, Glandore, Co. Cork.
105-06	22	Fibrous hæmatite ore, compact hæmatite, Glandore.
107	23	Brown hæmatite in concentric layers, Ballybunion Caves, Co. Kerry.
108	24	Reniform iron ore, said to be from the bed of the Dodder, Co. Dublin.
109-11	25	Brown hæmatite, Ramoan, Co. Antrim.
112	26	Bog iron ore, Lough Glynn, Co. Mayo.
113	27	Ditto,
114-21	28, 29	Impure ochreous hæmatite, &c., Sutton, Howth, Co. Dublin.
122-24	30	Red-hæmatite, Ballinagard, Co. Limerick.
125	31	Ditto, Culfeightrim, Co. Antrim.
126	32	Carbonate of iron in quartz, Glendalough, Co. Wicklow.
127-28	33	Carbonate of iron (siderite), from great lode on south side of Waterfall in Glendalough, Co. Wicklow,
129	34	Carbonate of iron, Ramoan, Co. Antrim.
130	35	Carbonate of iron, Clonoe, Co. Tyrone.
131-36	36	Clay iron stone, earthy carbonate of iron, valley of the Arigna, Co. Leitrim.
137-38	37	Sparry iron ore with carbonate of lime, Dunmore.
139	38	Blue phosphate of iron found associated with bog iron ore in the Bog of Allen, Co. Kildare.
		[N.B.—A complete series of the ores and minerals of iron will be found included with the typical collection of minerals, Lower South Gallery.]